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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,709	05/03/2006	Yi Zeng	1557-2 PCT/US	3790

23869 7590 02/20/2007  
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EXAMINER
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HUYNH, PHUONG

ART UNIT	PAPER NUMBER
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2857

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/538,709	ZENG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Phuong Huynh	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 34-36 is/are rejected.
- 7) ☐ Claim(s) 2-7, 11-16, 20-25 and 28-33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/10/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Objections*

2. Claim 3 is objected to because of the following informalities:

At lines 3 and 4, the limitations: "the leading sensor" and "the trailing sensor" lack proper antecedent basis. Accordingly, no "leading sensor" and "trailing sensor" was previously recited.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 101*

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A process is statutory if it requires physical acts to be performed outside the

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computer independent of and following the steps to be performed by a programmed computer, where those acts involve the manipulation of tangible physical objects and result in the object having a different physical attribute or structure (see MPEP 2106). A claim is limited to a practical application when the method, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something that is concrete, tangible and useful. Referring to the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" in determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is "useful, tangible and concrete."

Regarding claims 1, 10, and 19, the methods as claimed are abstract ideas that produce neither a physical transformation nor a useful, concrete and tangible result.

Accordingly, the "[provided] data output [see claim 1, lines 10 and 11; claim 10, lines 11 and 12; claim 19, lines 11 and 12]" is not recited as being communicated to a user, displayed, or stored in any tangible form for later use or access.

Claims 2-9, 11-18 and 20-26 depend from rejected claims 1, 10 and 19 respectively and therefore are also rejected.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8-10, 17-19 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Fleetwood (US Patent No. 4,739,262).

Regarding claims 1, 10 and 19, Fleetwood discloses a method of processing marine magnetic data obtained by towing first and second spaced apart sensors behind a ship, the method including:

obtaining raw magnetic gradient data from the sensors [see Fleetwood: Abstract; col. 2, lines 44-50];

determining the trend of the gradient of the ship bias detected by the sensors [see Fleetwood: Abstract; col. 2, lines 50-67 and col. 3, line 49-col. 4, line 67];

subtracting the trend from the raw magnetic gradient data to obtain corrected gradient data; and processing the corrected gradient data to provide a data output [see Fleetwood: col. 5, lines 1-16].

Regarding claims 8 and 17, Fleetwood discloses that the first and second sensors which are towed behind the ship are included in a group of three or more towed sensors [see Fleetwood: Abstract].

Regarding claims 9, 18, and 26, Fleetwood discloses that the number of sensors towed behind the ship comprises three sensors [see Fleetwood: Abstract].

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Fleetwood (US Patent No. 4,739,262).

Regarding claim 27, the admitted prior art discloses a method of drilling for a deposit in a marine environment, including: determining the location of drilling from data which has been obtained and which indicates the possible existence of the deposit; and which location is also determined by magnetic data which has been obtained by towing magnetic sensors behind a ship, the magnetic data being processed by: obtaining raw magnetic gradient data from the sensors [see Applicant's Specification: Background Art].

The admitted prior art does not disclose determining the trend of the gradient of the ship bias detected by the sensors or subtracting the trend from the raw magnetic gradient data to obtain corrected gradient data; and processing the corrected gradient data to provide a data output.

Fleetwood teaches determining the trend of the gradient of the ship bias detected by the sensors [see Fleetwood: Abstract; col. 2, lines 50-67 and col. 3, line 49-col. 4, line 67];

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subtracting the trend from the raw magnetic gradient data to obtain corrected gradient data; and processing the corrected gradient data to provide a data output [see Fleetwood: col. 5, lines 1-16].

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of the admitted prior art to include the trend determination and subtraction, as taught by Fleetwood, to remove bias difference between magnetometers [see Fleetwood: Abstract and col. 2, lines 4-67].

Regarding claim 34, the admitted prior art does not disclose that the first and second sensors which are towed behind the ship are included in a group of three or more towed sensors.

Fleetwood teaches that the first and second sensors which are towed behind the ship are included in a group of three or more towed sensors [see Fleetwood: Abstract].

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of the admitted prior art to include sensors, as taught by Fleetwood, to remove bias difference between magnetometers [see Fleetwood: Abstract and col. 2, lines 4-67].

Regarding claim 35, the admitted prior art does not disclose that the number of sensors towed behind the ship comprises three sensors.

Fleetwood teaches that the number of sensors towed behind the ship comprises three sensors [see Fleetwood: Abstract].

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It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of the admitted prior art to include sensors, as taught by Fleetwood, to remove bias difference between magnetometers [see Fleetwood: Abstract and col. 2, lines 4-67].

Regarding claim 36, the admitted prior art discloses that data from any two of the sensors is used to provide the raw magnetic gradient data [see Applicant's Specification: Background Art].

### ***Allowable Subject Matter***

6. Claims 2-7, 11-16, and 20-25 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. Claims 28-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Huynh whose telephone number is 571-272-2718. The examiner can normally be reached on M-F: 8:30 AM - 5:00 PM.




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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phuong Huynh  
Examiner  
Art Unit 2857

PH  
February 9, 2007

  
**HAL WACHSMAN**  
**PRIMARY EXAMINER**  
